

Norfolk, Suffolk and Cambridgeshire

**Joint Communicable Disease
Incident/Outbreak
Management Plan**

June 2014

DOCUMENT INFORMATION	
Title	Joint Communicable Disease Incident/Outbreak Management Plan
Lead author	Dr Bernadette Nazareth Consultant in Communicable Disease Control
Contributors	Input to its development/comments on the plan were received from the following: Norfolk, Suffolk and Cambridgeshire and Peterborough LHRPs Cambridgeshire CC: Liz Robin (DPH); Linda Sheridan (Consultant in PH), Pat Harding (Corporate Director); Chris Lloyd (EHP, Hunts DC) Kate King and Hamid Mahgoub (Anglia HPT) NHS England East Anglia Area Team: Tracy Dowling (Director of Operations & Delivery), Shylaja Thomas (Consultant Lead for Screening and Immunisation) Cambridgeshire and Peterborough and Suffolk EHPs Lynn Rodrigues (C&P CCG) Sara Fletcher (DIPC, Norfolk and Suffolk NHS Foundation Trust) Barry Wroe (Head of Resilience and Information Governance, Cambs Community Services) Mike Gooch (EPR Manager, Suffolk CCGs) Suffolk CC: Tessa Lindfield (DPH), Mary Orhewere (Consultant in PH) AHVLA: Anthony Greenleaves and Charlotte Featherstone
Approved by	Local Health Resilience Partnerships
Distribution	Clinical Commissioning Groups Directors of Public Health Directors of Infection Prevention and Control Health Protection Team Local Health Resilience Partnerships Local Health Protection Committees/Groups Local Food Liaison Groups NHS & Public Health Microbiologists NHS England Area Team (via LHRP Chair) NHS Trust IPCCs Unitary Authority/County Council Public Health Specialists Unitary/City/District Council Environmental Health Practitioners Water Companies

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CONTENTS

	Page No.
Abbreviations	2
Incident Management Flowchart	3
1. Introduction	4
2. Aim and Scope of the Plan	4
3. Planning and Preparedness	5
4. Alerting Mechanisms and Triggers	5
4.1 Recognition of an Outbreak.....	5
4.2 Incidents and Outbreaks.....	6
4.3 Minor Outbreak.....	6
4.4 Major Outbreak.....	7
4.5 Cross Boundary/Regional Outbreaks	8
4.6 Major Incident Status.....	8
5. Incident/Outbreak Response	8
5.1 Initial Response and Preliminary Investigation.....	8
5.2 Declaring an Outbreak.....	9
5.3 Incident Management Team	10
5.4 Management of Individual Cases.....	10
5.5 Public Health Investigations.....	11
5.6 Control Measures	12
5.7 Communications.....	13
5.8 Documentation	13
5.9 Confidentiality.....	13
6. End of Outbreak	14
6.1 Outbreak Conclusion	14
6.2 Outbreak Report.....	14

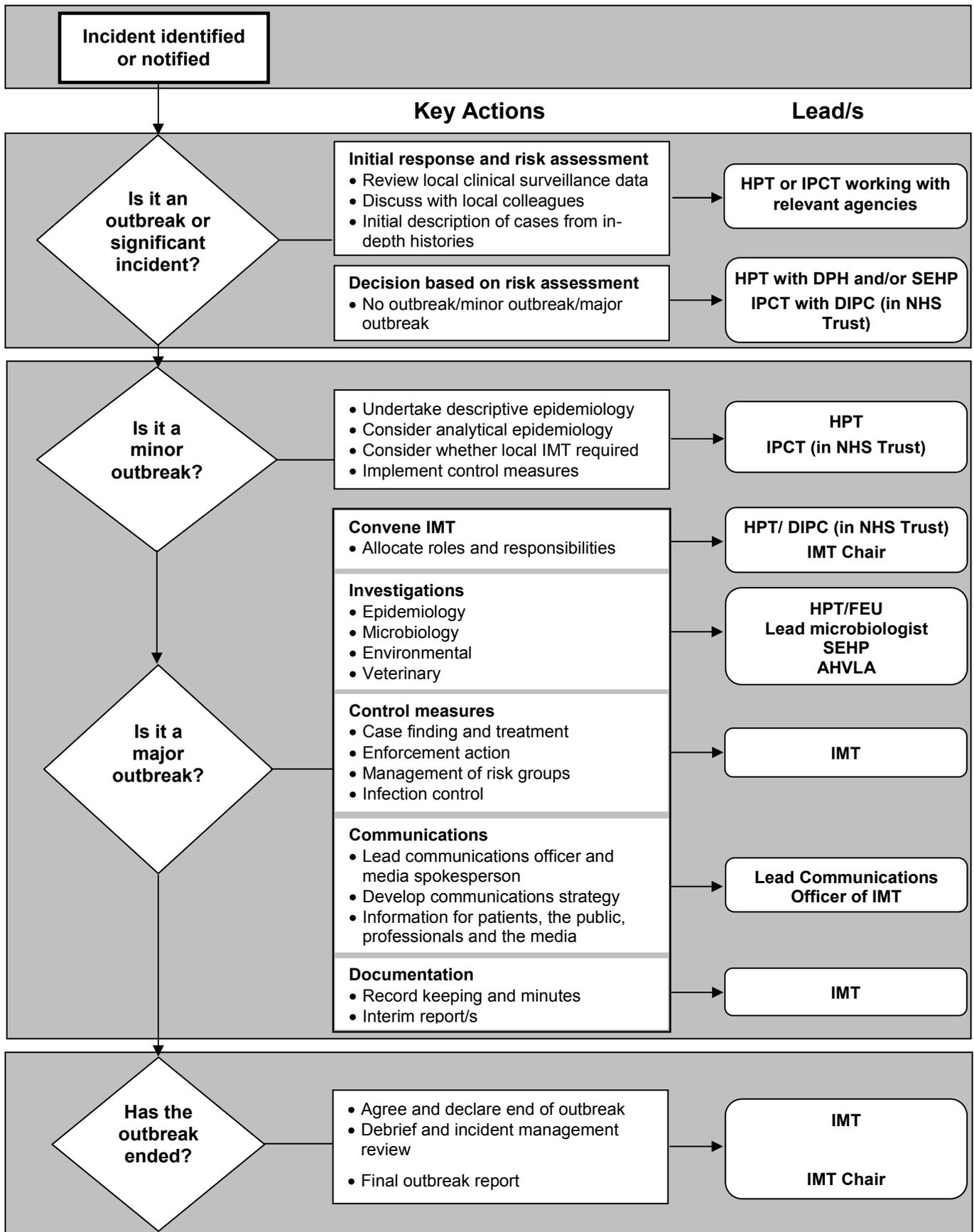
Appendices

- Appendix 1 Roles and Responsibilities of Organisations
- Appendix 2 Zoonotic Diseases – Role of AHVLA
- Appendix 3 Cryptosporidium and Water Supplies
- Appendix 4 Deliberate Release
- Appendix 5 Incident Management Team
- Appendix 6 Core IMT Roles and Responsibilities
- Appendix 7 Epidemiological Investigation Steps
- Appendix 8 Telephone Helpline
- Appendix 9 Outbreak Report
- Appendix 10 Audit Tool for Outbreak Management

ABBREVIATIONS

AHVLA	Animal Health and Veterinary Laboratories Agency
CCDC	Consultant in Communicable Disease Control
CCG	Clinical Commissioning Group
DEFRA	Department for the Environment, Food and Rural Affairs
DH	Department of Health
DIPC	Director of Infection Prevention and Control
DPH	Director of Public Health
DVM	Divisional Veterinary Manager (now ROD)
EH	Environmental Health
EHP	Environmental Health Practitioner
EHD	Environmental Health Department
EPRR	Emergency Preparedness, Resilience and Response
FEU	Field Epidemiology Unit
GP	General Practitioner
HBV	Hepatitis B Virus
HPT	Health Protection Team
HSE	Health and Safety Executive
IPCD	Infection Prevention and Control Doctor
IPCN	Infection Prevention and Control Nurse
IPCT	Infection Prevention and Control Team
IMT	Incident Management Team
LA	Local Authority
MIP	Major Incident Plan
MMR	Measles, Mumps, Rubella
NHS	National Health Service
PHE	Public Health England
ROD	Regional Operations Director (AHVLA)
SEHP	Senior Environmental Health Practitioner
STAC	Scientific and Technical Advisory Cell
TB	Tuberculosis
VIO	Veterinary Investigation Officer
WHO	World Health Organisation

INCIDENT MANAGEMENT FLOWCHART



1. INTRODUCTION

- 1.1 Following the implementation of the Health and Social Care Act 2012 which resulted in the reorganisation of health services on 1 April 2013, responsibility for health protection is shared between a number of organisations.
- 1.2 This document provides a framework for partnership working across the new public health structures including the Public Health England Centre (PHEC) local health protection team (HPT), local authority (LA) public health directorates and local authority environmental health departments (EHDs), Clinical Commissioning Groups (CCGs), NHS England and other relevant bodies. Appendix 1 provides an overview of roles and responsibilities of key organisations.
- 1.3 It constitutes a joint plan to manage an outbreak or significant incident of communicable disease/infection or contamination in Norfolk, Suffolk, Cambridgeshire and Peterborough.

2. AIM AND SCOPE OF THE PLAN

- 2.1 The purpose of this plan is to provide a structured framework within which outbreaks and significant incidents of communicable disease and infection are effectively investigated, brought under control and where possible measures taken to prevent similar outbreaks in the future. It does not cover surveillance or the routine management of individual cases of communicable diseases.
- 2.2 ***The term 'outbreak', used throughout this document, refers to both outbreaks and significant incidents of communicable disease and infection (see also Section 4.2). All communicable diseases and infections, defined as illnesses caused by microbiological agents including bacteria, viruses, fungi and parasites, are covered within the scope of this plan.***
- 2.3 Clarity over roles and responsibilities in managing outbreaks is essential. This plan enables a coordinated approach to be taken in the management of an outbreak and covers key roles and responsibilities, management and organisational aspects, communication, investigation and control procedures.
- 2.4 The majority of outbreaks will be caused by an enteric organism or have an environmental component. These outbreaks will require significant involvement from LA EHDs.
- 2.5 Incidents or outbreaks in Health and Safety Executive (HSE) enforced premises may also need HSE involvement.
- 2.6 The Animal Health and Veterinary Laboratories Agency (AHVLA) will be involved in the event of an outbreak of a zoonotic disease. Their role is outlined in Appendix 2.
- 2.7 If water supplies are implicated in an incident (e.g. contamination) or outbreak (e.g. cryptosporidiosis), the membership of the Incident Management Team (IMT) will include water company representatives. Representatives should include an officer able to make key executive decisions on behalf of the water company. This plan is also in accordance with the recommendations of the Badenoch Report on *Cryptosporidium in Water Supplies*. Further guidance is provided in Appendix 3.
- 2.8 Outbreaks and incidents of unusual illnesses might have any one of a number of causes in addition to infectious causes, including chemical, nutritional, radiological or even hysterical. Biological agents may be released deliberately. This document provides a framework for the initial management of these incidents, although as soon as suspicion of such an incident is raised, reference should be made to specific guidance (see Appendix 4).

- 2.9 Outbreaks may occur within the community or within institutions, or a combination. Outbreaks confined to specific NHS Trust premises, whether acute or community, will be managed by the relevant NHS Trust in accordance with their operational plans with the support of other professionals or organisations as needed e.g. CCDC, HPT. However, the principles within this plan apply to any identified outbreak.

3. PLANNING AND PREPAREDNESS

- 3.1 This plan will be reviewed at least once every two years or in the light of new guidance, changes in infrastructure or changes in practice following an incident.
- 3.2 The plan will need to be tested (by an exercise or management of an actual outbreak) at regular intervals (at least once every two years).
- 3.3 It is the responsibility of each constituent organisation to identify their key staff and their training needs and ensure that they are trained to a level that will enable them to execute this plan. This will include participation in training exercises (or an actual outbreak) at least once every two years.
- 3.4 Where constituent organisations have Major Incident Plans, this plan should be incorporated as an appendix to the Major Incident Plan.
- 3.5 Specific national guidance and plans are available for a range of situations, including avian influenza, influenza, blood-borne viruses, meningococcal disease, sexually transmitted disease, tuberculosis (TB) and zoonotic diseases. Where relevant, this plan should be augmented by the specific guidance available.
- 3.6 A useful resource is the PHE *Communicable Disease Outbreak Management Operational Guidance* available at www.phe.gov.uk.

4. ALERTING MECHANISMS AND TRIGGERS

4.1 Recognition of an Outbreak

- 4.1.1 Outbreaks may emerge in one of two ways:
- Acute outbreaks – which lead to a sudden increase in numbers of cases; often associated with a point source.
 - Persisting outbreaks – which develop over a number of days and weeks; often involving a disease in which person to person spread is common (with or without an initial point source).
- 4.1.2 Each partner organisation has its own procedures for surveillance, detection and control. The occurrence of an outbreak may sometimes be extremely obvious. This will occur if a specific group or event is involved. However, if patients are cared for by different general practitioners (GPs) or admitted to several hospitals, awareness of the extent and severity of an outbreak may be slow to emerge.
- 4.1.3 Outbreaks/significant incidents of infection may be identified from the following sources:
- Statutory notifications and routine surveillance
 - Laboratory services
 - Informal reports from GPs and hospital clinicians
 - Residential establishments

- Members of the public e.g. complaints are frequently received by EH services.
- LAs
- PHE Field Epidemiology Unit (FEU)
- PHE Colindale
- Water companies

4.2 Incidents and Outbreaks

4.2.1 The difference between an incident and an outbreak is a matter of judgement; either scenario might be handled in a similar way and either might demand significant resources.

4.2.2 Broadly, an outbreak, incident or adverse health event due to a CD or infection can be defined as follows:

- An incident in which two or more people experiencing a similar illness are linked in time/place¹
- A greater than expected rate of infection compared with the usual background rate for the place and time where the outbreak has occurred
- A single case for certain rare, highly infectious and/or pathogenic diseases such as diphtheria, botulism, rabies, viral haemorrhagic fever or polio
- Exposure of a group of people to a person with a particularly serious infection such as open tuberculosis in a schoolteacher
- A zoonotic disease in animals/birds with the potential for significant human disease due to exposure of a group of people
- In some circumstances, a suspected, anticipated or actual incident involving microbiological or chemical contamination of food, water or the general environment may lead to activation of outbreak plans
- Malpractice or maladministration of infection related healthcare, e.g. discovery that immunisations have been incorrectly given or vaccine incorrectly stored.

4.3 Minor Outbreak

4.3.1 A minor outbreak is one that can normally be investigated and controlled within the resources of the local teams, the HPT, LA EHDs, Infection Prevention and Control Teams (IPCTs) and the appropriate microbiology laboratories. In a minor outbreak, a formal Incident/Outbreak Management Team (IMT) may not be convened but investigation and management of the outbreak will be in accordance with the principles (as for a major outbreak) outlined in this plan and will require close collaboration and communication between relevant parties with face-to-face meetings as necessary. Individual roles and responsibilities will be agreed at the outset.

4.3.2 Where set up, the IMT will function at a tactical/operational level.

Examples of Minor Outbreaks

- A small cluster of suspected measles cases in a school with good uptake of MMR.
- A suspected outbreak of food poisoning in the employees of a small firm.
- An outbreak of norovirus infection confined to a care home or hospital ward.

¹ This is an accepted definition. However, for more minor illnesses, two cases would not be considered an outbreak

4.4 Major Outbreak

4.4.1 A major outbreak is one that extends beyond an immediate locality, requires specialist expertise or is beyond locally available resources.

4.4.2 A major outbreak may be declared in the following circumstances:

- A large number of people, or multiple cohorts of people, are affected and may include residents from beyond the local HPT area.
- There is reason to believe the outbreak or incident is part of a larger problem.
- A minor outbreak but where there is evidence the situation is rapidly worsening.
- A vulnerable population at risk (e.g. immuno-compromised patients, an outbreak in a premature baby unit).
- The organism involved is highly pathogenic (e.g. toxigenic diphtheria, viral haemorrhagic fevers, etc).
- Significant maladministration of vaccines.
- Contamination of blood products.
- There have been one or more unexpected deaths that may be attributable to infectious disease *and* others are expected (ie the death(s) was not considered to be entirely due to another non-infectious cause and there is potential for further deaths).
- A hospital outbreak:
 - with immediate or continuing risk to public health outside the hospital;
 - with large numbers of cases within a short interval (e.g. >20 cases within one week);
 - requiring closure of wards or units;
- There is potential for transmission to large numbers of people (e.g. widespread distribution of food product, public water supply or point source affecting large numbers).
- Where very specialist expertise is required because of a rare or unusual nature of the outbreak.
- There is some plausible indication that the events are or may be due to deliberate release.

Examples of Major Outbreaks/Significant Incidents

- A community outbreak of Legionnaires' disease.
- Accidental biological contamination of a distributed water supply.
- An infectious hepatitis B virus (HBV) positive health care worker who has practised extensively, performing exposure prone procedures.
- A serious imported infection, e.g. viral haemorrhagic fever affecting a hospital by nosocomial transmission or significant exposure of staff.
- A meningococcal outbreak resulting in substantial morbidity and some mortality.
- A large number of individuals subject to maladministration of vaccines.

4.4.3 An IMT will be set up (see Section 5.3 and Appendix 5). The IMT will usually function at a strategic/tactical level covering both health service and public health aspects. Operational groups may also be set up to deal with particular aspects of outbreak management, e.g. undertaking mass vaccination.

4.4.4 An incident control room, which may be located at HPT or LA premises or (depending on the circumstances) within an NHS Trust may need to be established to manage the situation.

4.5 Cross-boundary/Regional Outbreaks

- 4.5.1 Where outbreaks cross administrative boundaries, the decision about who is leading needs to be agreed quickly by those involved. It is essential that NHS Trusts collaborate fully in this process, as appropriate.
- 4.5.2 The following will need to be considered in relation to the lead role:
- The area where most cases have occurred.
 - The area where any function or event associated with the outbreak occurred.
 - The area where the wholesaler or retailer is located.
- 4.5.3 In most circumstances it will be appropriate to convene a single IMT, with IMT members drawn from the HPT, NHS Trust and LA most affected (and relevant officers from other affected districts involved in meetings and decision taking, as necessary). In others a Joint IMT, with representatives from the involved HPTs, NHS Trusts and LAs, may be the best way forward, with local teams actioning decisions taken at the joint IMT.
- 4.5.4 Each organisation will make available at the request of the joint IMT, the necessary resources to effectively investigate and control the outbreak. It is inevitable in a cross boundary outbreak that relevant information may need to be released to a neighbouring authority/agency. Information will be released on a “need to know” basis. All authorities and agencies will ensure confidentiality of information obtained during cross boundary outbreaks.

4.6 Major Incident Status

- 4.6.1 On occasion, outbreaks may be of such importance or magnitude that there are significant implications for routine services and the additional resources required. At such time that a major outbreak is affecting large numbers of the population, consuming increasing health care resources and stretching the local capacity to deal with clinical, professional and media demands, the IMT may decide that a major public health incident/ health services emergency needs to be declared. In these circumstances, the IMT will alert the appropriate local agencies to consider declaring a Major Incident and bringing local major incident plans into effect.
- 4.6.2 On declaration of a Major Incident, the IMT will reconstitute itself, or be incorporated, into a Scientific and Technical Advisory Cell (STAC). In doing so, the IMT will need to ensure that the key roles and responsibilities (Appendix 6) continue to be fulfilled via the major incident groups that are set up and that operational groups implementing, for instance, epidemiological investigation or mass treatment, are incorporated into the major incident response structures. The STAC itself is a strategic group that advises the Strategic Command Group that is set up in a Major Incident.

5. INCIDENT/OUTBREAK RESPONSE

5.1 Initial Response and Risk Assessment

- 5.1.1 When the cases are first identified and the need to investigate an outbreak arises, the common link may already be obvious, e.g. if they are already known to have been guests at the same function. When this is not apparent, the first step will be to make an initial description of the cases, consider whether affected patients are suffering from the same illness and if there is any evidence of an association between them.

Initial Investigation: key objectives

- To identify whether a problem exists.
- To determine the nature and extent of the problem.
- To decide what immediate steps need to be taken to:
 - identify those who are ill;
 - ensure patients receive appropriate care;
 - identify those at risk;
 - control the source;
 - contain the infection.
- To identify whether the episode is of sufficient significance to require special arrangements for investigation and management.

5.1.2 Immediate control measures should be implemented as necessary and initial investigation to clarify the nature of the outbreak should begin within 24 hours of receiving the initial alert/report. The following steps should be undertaken to establish key facts and inform the decision to declare an outbreak:

- Confirm the validity of the initial information upon which the potential outbreak is based (e.g. the possibility of ascertainment bias, laboratory false positives etc).
- Consider what the tentative diagnosis is and whether all the cases have the same diagnosis.
- Conduct preliminary interviews with cases to gather basic information including any common factors.
- Collect relevant clinical and/or environmental specimens.
- Form preliminary hypotheses.
- Carry out an initial risk assessment to guide the decision-making process.
- Consider the likelihood of a continuing risk to public health.

5.1.3 All activities conducted as part of an outbreak should be underpinned by a comprehensive risk assessment which includes consideration of factors such as disease severity and spread, possible interventions, and the context in which the case/incident has occurred. Risk assessments should be regularly reviewed throughout the outbreak investigation.

5.1.4 If the investigating team feel that the outbreak or incident is genuine, this is the trigger for declaring an outbreak and moving onto the next phase of investigating the outbreak.

5.1.5 Alternatively, there may be insufficient evidence to confirm an outbreak although suspicion may remain. It is then necessary to collect further evidence before the occurrence of an outbreak can be excluded.

5.2 Declaring an Incident/Outbreak

5.2.1 The responsibility for declaring an outbreak and its classification as minor or major will vary depending on the circumstances of the incident as follows:

Incident Site	Responsible Officers
NHS Trust premises	Infection Control Doctor (ICD)/Director of Infection Prevention and Control (DIPC)/On-call Director
General community/non-NHS premises	CCDC/DPH with Consultant Microbiologist and/or SEHP

- 5.2.3 A systematic approach to the investigation and control of an outbreak is required. A schematic overview is shown at the beginning of this plan. The purpose of systematic investigation is to provide timely and reliable information on which to base sound decisions about the management of the outbreak.
- 5.2.4 Legal proceedings may need to be considered as part of the management of the outbreak. However, the objective in outbreak management is to protect public health by identifying the source and implementing control measures to prevent further spread or recurrence of the infection. Any data collection required for criminal proceedings should not compromise the public health investigation.

5.3 Incident Management Team (see Appendix 5)

- 5.3.1 As a guide, an IMT should be considered when one or more of these conditions apply:

- The disease poses an **immediate health hazard** to the local population
- There are a **significant number** of cases
- The disease is **important**, in terms of its severity and/or its capacity to spread
- Cases have occurred in a **high-risk establishment**, e.g. schools, hotels, hospitals, care homes, guesthouses and food premises.

5.3.2 *The remit of the IMT*

The remit of the IMT is to agree and coordinate the activities of the agencies involved in the investigation and control of the outbreak in order that the aetiology, vehicle and source of the outbreak are identified and control measures implemented as soon as possible and, if required, legal advice sought.

The roles and responsibilities in the management of an outbreak are provided at Appendix 6. Roles and responsibilities should be assigned to members of the IMT at its first meeting. In terms of carrying out their functions, individual members will remain managerially and professionally accountable to their employing organisations. The employing authority will remain liable for their actions unless they have been formally placed at the disposal of the other organisation e.g. using section 112 of the Local Government Act 1972.

5.3.3 *The authority of the IMT*

The IMT will act on behalf of one of the key organisations involved in the outbreak; this may be the NHS Trust, the PHE or the LA. The purpose of the investigation, and following on from this, the lead organisation, should be agreed and recorded at the first meeting. The lead organisation will have overall accountability for the management of the outbreak and the ownership of the data generated by it. All other involved organisations will work with the lead organisation in the management of the outbreak.

It is important to note that in a number of situations LAs and other agencies, e.g. the HSE (Health and Safety Executive), DEFRA (Department for the Environment, Food and Rural Affairs), have an enforcement role which is outwith the responsibility of the IMT. However, there should still be a common purpose in the management of the incident or outbreak, agreed within the IMT.

5.4 Management of Individual Cases

- 5.4.1 The management of individual cases is the responsibility of their GP or clinician. Public health action in relation to individual cases (e.g. exclusion from work, the identification of contacts, infection control advice, etc) will be undertaken by investigating officers, based on appropriate advice. Investigating officers may include EHPs (for instance in food poisoning cases) or health protection/infection control staff (for instance in TB cases). As relevant, GPs, clinicians, investigating officers, etc will need clear advice from the IMT.

5.5 Public Health Investigations

5.5.1 The key objective of public health investigations is to provide reliable information on which decisions can be based to manage the incident or outbreak. It is essential that a logical approach be taken, using reliable and robust methodologies. The use of epidemiological methods should be based on advice from local health protection teams or specialists as required. The CCDC and/or the IPCD (hospital infections) or the IMT (if one is convened) should agree how the initial investigation is to proceed. In general investigations are likely to cover epidemiological and microbiological (human and environmental) aspects, but on occasions other areas will be investigated, e.g. veterinary investigations, for a zoonosis.

5.5.2 *Epidemiological investigation* (See Appendix 7)

Basic descriptive epidemiology is essential and should be reviewed at each IMT meeting. In some outbreaks descriptive epidemiology might be sufficient to take action. It is also crucial for generating a hypothesis as to the source of the infection. If at all possible, the patients affected should be interviewed to obtain a detailed history of the illness and of possible sources of the infection to identify factors that are common to some or all the cases. Establishing a preliminary case definition is also important.

Conducting an analytical study should be considered early in the investigation. The purpose of an analytical study is to confirm a hypothesis regarding the source of infection or mechanism of spread in order to take action to protect public health. An analytical study should only be undertaken if there is a hypothesis to test.

A realistic timescale for undertaking and completing epidemiological investigations needs to be agreed and communicated to all relevant parties.

Epidemiological investigation is led by the PHE HPT.

5.5.3 *Microbiological investigation*

Involves the appropriate microbiological analysis of samples from human cases, contacts, food, water, the environment and animals to identify the causative organism and its likely origin.

Microbiological investigation is the responsibility of the relevant NHS Trust Consultant Microbiologist/Virologist and the PHE Microbiology Service. A lead microbiologist on the IMT will coordinate the microbiological investigations.

5.5.4 *Environmental investigation*

In some circumstances it may be appropriate to investigate the environment in a case of infection/communicable disease e.g. food-borne infection or Legionnaires' disease. This is undertaken to highlight possible vehicles of infection and modes of transmission including examination of food handling practices, review of premises and personal hygiene, scrutiny of procedural documentation and critical records and tracing all risk foods back to source (as appropriate).

Environmental investigation is led by the LA EHD.

5.5.5 *Veterinary investigation*

If appropriate; see Appendix 2.

Veterinary investigation is led by the AHVLA.

5.6 Control Measures

5.6.1 The basic principles of communicable disease outbreak control are to:

- control the source (may be animal, human or environmental)
- control the mode of spread
- protect persons at risk
- monitor control measures.

Control measures are based on an assessment of the risk and may be directed at the source or the vehicle or both. Measures will depend on the mode of spread and the particular circumstances of the outbreak. Control may also include offering protection to persons at risk (e.g. giving immunoglobulin to those exposed to infection during an outbreak of hepatitis A).

Continued monitoring, both of the control measures and to identify any further cases of illness associated with the outbreak, is essential to ensure that the measures are working.

5.6.2 Responsibilities for control measures

It is the responsibility of the IMT to:

- ensure adequate control measures are identified, implemented, and monitored to ensure their effectiveness and to confirm that no potential continuing sources of infection exist
- make recommendations on chemo/immuno-prophylaxis as necessary
- be responsible for general health advice relevant to the outbreak.

It is the responsibility of the HP/IC Medical Consultant/Nurse Specialist to:

- ensure that the IMT receive adequate information in order to take decisions regarding preventive actions
- make recommendations on isolation, exclusion and segregation of infected persons as necessary.

It is the responsibility of the NHS Trusts to:

- ensure the availability of adequate resources and staff as required for the control of the outbreak, e.g. the assistance of community staff, delivery of mass vaccination and prophylaxis
- take measures to control the spread of infection in Trust premises.

It is the responsibility of the Senior EHP to:

- take measures recommended under public health law, acting, when indicated, on the advice of the Proper Officer
- take action in relation to the relevant Food Safety Act (and relevant regulations and EU Directives)
- coordinate action in relation to the disinfection, removal or treatment of known or suspected environmental sources of infection.

It is the responsibility of the HSE/LA to:

- take action in relation to the Health and Safety at Work Act (and relevant regulations and EU Directives).

5.7 Communications

- 5.7.1 The IMT will identify a lead communications officer and a media spokesperson. A communications strategy will be developed by the communications officer and agreed at the outset by the IMT. This should cover all relevant communications, including communication to staff involved in the outbreak, health and local authority staff, the public and the media. The lead communications officer will link with relevant organisational and national press offices as necessary.
- 5.7.2 During an incident the IMT will decide on:
- the information to be made available to the press and public – there are advantages in providing a daily update for the press at an agreed time and for the production of media briefing notes
 - the timing and methods (including use of social media) by which such information should be released
 - whether to establish a telephone helpline for those affected/the public (Appendix 8).
- 5.7.3 In reaching decisions on these issues, the IMT should be alert to the importance of providing early and clear information on the nature and scale of the problem and on the action recommended, if any, and of updating this information regularly.

5.8 Documentation

- 5.8.1 Detailed recording of all aspects of the outbreak and its management must be undertaken. Legal action may ensue and this should always be borne in mind. All documentation, including computer-generated information relating to the outbreak must be retained and regular back-ups of electronically stored information made.
- 5.8.2 Detailed minutes will be taken at every meeting. The minutes will document all decisions taken, actions agreed and responsible individuals. The minutes will remain confidential.
- 5.8.3 A nominated person will be responsible for documentation of all the events and information related to the outbreak plan. All correspondence and minutes of meetings should be filed together in chronological order.
- 5.8.4 An initial report will be completed after the preliminary inquiry if possible within 48 hrs and a final report at the end of the investigation (section 6.3 and Appendix 9).
- 5.8.5 IMT members should keep personal logs of their activities including details of information received, conversations held and meetings attended.

5.9 Confidentiality

- 5.9.1 Individual clinical/food histories should be treated as medical records and managed with the same degree of confidentiality, according to Caldicott principles. Personal medical information should generally not be divulged without permission.
- 5.9.2 All members and co-opted members of the IMT should be fully apprised of the requirement for confidentiality.
- 5.9.3 Information given or obtained for one purpose should not be used for a different purpose without the consent of the provider of the information. All data, including computer-held data, are covered by the Data Protection Act 1998. Information on manual records may be subject to the Access to Health Records Act 1990.
- 5.9.4 The fact that the name of an ill person is already known to others and the media is no reason to breach confidentiality. General information on a need to know basis, which will not identify a person, can be provided to others.
- 5.9.5 The IMT may disclose information about a person in certain circumstances to prevent serious risk to public health or the health of other individuals. Each disclosure is considered on its merit after consultation with relevant people.

6. END OF OURBREAK

6.1 Outbreak Conclusion

The IMT will decide when the outbreak is over and that there is no longer a risk to public health.

Outbreak Conclusion

Issues for consideration:

- There is no longer a risk to the public health that requires further investigation or management of control measures by an IMT.
- The number of cases has declined.
- The probable source has been identified and withdrawn.

6.2 A debriefing meeting of the IMT should be convened to review the management of the outbreak, consider the lessons learned and any further preventive action required. The audit tool (Appendix 10) may be used to review the management of the outbreak.

6.3 Outbreak Report

6.3.1 The chair of the IMT will ensure the production and distribution of interim and final reports, with contributions from IMT members as relevant. Appendix 9 provides a suggested structure for the report. The nature of the outbreak, the investigations undertaken and the intended audience will influence the final format.

Purpose of Final Outbreak Report

- Record of the management of the outbreak.
- Presentation of investigative methods, control measures.
- Document for action to highlight any learning and changes required to outbreak plans.

6.3.2 In writing the report, confidentiality aspects (patients, clients, businesses, etc), media issues and legal disclosure need to be borne in mind (see Appendix 9).

6.3.2 The final report should be suitable for publication and be circulated as appropriate following agreement by the IMT. The aim should be to agree a final report within six weeks of the end of the outbreak investigation, but this may not always be possible. It should be submitted to the appropriate committees of the lead organisation as the formal route into the public domain and, as relevant, the appropriate committees of other involved organisations. In some cases, it may be necessary to delay or limit the publication of the report pending legal action.

ROLES AND RESPONSIBILITIES OF ORGANISATIONS

Public Health England

PHE is an executive agency of the Department of Health. Under the Health and Social Care Act 2012 the Secretary of State has a duty to protect the health of the population and carry out activities as described in the Health Protection Agency Act 2004. In practice these functions are carried out by PHE.

PHE delivers a specialist health protection service, including the response to incidents and outbreaks, through Health Protection Teams (HPTs), which sit within PHE Centres (PHECs). Local HPTs investigate and manage outbreaks of communicable disease, provide surveillance of communicable diseases and infections and support local authorities (including port health authorities) in their responsibilities under the Public Health (Control of Disease) Act 1984 and associated regulations. Local HPTs are staffed by Consultants in Communicable Disease Control (CsCDC)/ Consultants in Health Protection (CHP), nurses, health protection practitioners and other staff with specialist health protection skills and access to expert advice.

The Screening and Immunisation Team includes public health specialists employed by PHE and embedded in NHS England Area Teams. It is led by a Consultant in Screening and Immunisation, supported by Screening and Immunisation Managers and Coordinators. Depending on the nature of the outbreak, input from Screening and Immunisation Leads (SILs) may be required.

PHE Colindale

The Centre for Infectious Disease Surveillance and Control (CIDSC) Colindale is responsible for the collection and collation of data on outbreaks of communicable disease and is involved in prevention and control at a national level in England. Where appropriate, CIDSC Colindale can provide experts to assist in local outbreak investigations or, in the case of outbreaks with a national distribution, its experts may themselves design and carry out outbreak investigations.

The Microbiology Services comprise the reference laboratories at Colindale (which assist in the identification and investigation of outbreaks by subtyping isolates) and the Regional Microbiology Network (RMN). The RMN includes the Food, Water and Environment (FW&E) laboratories and also has Regional Microbiologists who manage or commission regional public health microbiology services (including food, water and environmental microbiology). PHE's regional laboratories undertake specialist tests and provide support for NHS microbiology laboratories. In addition, the reference laboratory at Porton deals with special pathogens.

PHE Field Epidemiology Services

The Field Epidemiology Service (FES) was created to improve the consistency of high quality epidemiological investigations including those in response to outbreaks and incidents. FES is a nationally co-ordinated but geographically dispersed service with Consultant Epidemiologists, specialising in the epidemiology of communicable disease and in the application of epidemiological methods, supported by scientists and analysts. Each PHE Centre has a nominated link FES consultant. FES supports the investigation of outbreaks/incidents, including providing on-site support where needed and would be contacted in all significant incidents.

Director of Public Health

Following the implementation of the Health and Social Care Act 2012 which resulted in the reorganisation of health services on 1 April 2013, responsibility for health protection is shared between a number of organisations. As part of the reorganisation DsPH moved to LAs, and the overarching responsibility for the health of the population served by each LA rests with that authority and is carried by the DPH. A key feature of this responsibility is that for the majority of services the DPH has this accountability with no managerial responsibility. The DPH must therefore be assured on behalf of the LA they serve that all health sector organisations in their local area have adequate plans in place to meet the health protection needs of the population in any circumstance.

The DPH is responsible for the LA's contribution to health protection matters, including the LA's roles in planning for and responding to incidents that present a threat to the public's health.

DPH and PHEC roles are complementary; both are needed to provide an effective response and they should act together as a single public health system. This means that there must be early and ongoing communication between the PHEC and DPH about emerging health protection issues and to agree the nature of response required.

Local Resilience Forums (LRF) and Local Health Resilience Partnerships (LHRP)

Local Resilience Forums (LRF) are existing multi-agency partnerships which bring together senior representatives of emergency services, LA partners, NHS bodies and other responders. The purpose of the LRF is to prepare for and respond to emergencies as part of national coordination arrangements and enable and build local resilience capability through planning and testing. There are currently 39 LRFs that map directly on to police areas. The LRF facilitates preparedness at a local level but does not have an operational role.

The Local Health Resilience partnership (LHRP) is a strategic forum for organisations in the local health sector which facilitates health sector preparedness and planning for emergencies at LRF geographic level. It supports the health representatives on the LRF in their role to represent health sector Emergency Preparedness, Resilience and Response (EPRR) matters.

NHS England

NHS England is the overarching organisation that has responsibility for ensuring that health care is commissioned for the population of England. It is a single organisation with representation at national, regional and local level. The national team is based in Leeds and London, the regional team, which mirrors the PHE geography, covers the Midlands and East of England with an office base in Cambridge. The East Anglia Area Team covers Norfolk, Suffolk and Cambridgeshire, with an office base in Cambridge.

NHS England's responsibilities include:

- Allocation of resources to CCGs
- Supporting, developing and assuring the commissioning system
- Planning for civil emergencies and making sure the NHS is resilient
- Directly commissioning some health services including primary care, some public health services and specialised health services
- Developing commissioning support

The principal areas of health protection responsibility are:

- Commissioning Immunisation and Screening services led by a PHE team embedded with the NHS England Area Team
- Providing NHS leadership for Health Emergency Preparedness, Resilience and Response (EPRR) at local, regional and national level
- Overseeing the commissioning role of CCGs and supporting commissioner development.

Clinical Commissioning Groups

CCGs have been formally established under the Health and Social Care Act 2012 as clinically led groups that include all GP practices in their geographical area and are responsible for commissioning health services for the population they serve. The services they commission include:

- Elective hospital care
- Urgent and emergency care
- Most community health services
- Mental health and learning disability services

The principal areas in which CCGs impact health protection are:

- Commissioning health services for the population they serve including services to prevent and manage communicable diseases
- Responsibility for ensuring the quality of the care they commission including issues such as prevention of healthcare associated infection
- Responsibility for ensuring the resilience of the health services they commission, with 24/7 responsibility to deal with resilience issues and ensuring robust business continuity plans are in place.

Providers of NHS Funded Health Services

These include NHS trusts and organisations that deliver acute health services, mental health services, pre-hospital services such as ambulance trusts and community health services. In addition to NHS trusts and organisations, NHS commissioners may commission services from providers in the third sector such as voluntary organisations and social enterprises as well as providers in the private sector. All NHS funded health care must meet the standards set down by the commissioning organisations and by NHS England which includes standards for patient safety and health protection.

Following implementation of the Health and Social Care Act 2012, NHS England issued core standards for EPRR for all NHS organisation and providers of NHS funded care. All organisations are required to meet the requirements of the Civil Contingencies Act 2004. This includes having a 24/7 response capability for emergencies.

Local Authorities (Environmental Health Departments)

Key health protection responsibilities include:

- Environmental health – including dealing with contaminated land.
- Community safety
- Air quality - statutory duty under the Environment Act 1995 to manage Local Air Quality which involves monitoring and identifying areas where nationally prescribed objectives are at risk.
- Occupational Health and safety – LA EHPs inspect workplaces and respond to notifications of injury, disease and dangerous occurrences.
- Legionella – investigation of cases/outbreaks and potential sources.
- Food safety - EHPs inspect food businesses and investigate food incidents and outbreaks of food-borne illness.

LAs and port health authorities play a key role in managing outbreaks of foodborne illness. The Food Safety Act (1990) and the Food Hygiene Regulations (2006), or their equivalent in devolved administrations, place responsibilities and powers of control with LAs. LAs have powers to assist both investigation and control of outbreaks, including powers of entry, sampling powers and powers to exclude food handlers, seize and detain food and close premises.

The specific statutory responsibilities, duties and powers significant in the handling of an outbreak of communicable disease are set out in the following legislation:

- Public Health (Control of Disease) Act 1984
- Health Protection (Notification) Regulations 2010
- Health Protection (Local Authority Powers) Regulations 2010
- Health Protection (Part 2A Orders) Regulations 2010
- Health and Safety at work (Etc) Act 1974
- Food Safety Act 1990
- Food Safety and Hygiene Regulations 2013 (in place December 2013)
- Food Law Code Of Practice (England)
- International Health Regulations 2005
- Public Health (Ships) Regulations 1979
- Public Health (Aircraft) Regulations 1979

Food Standards Agency

The Food Standards Agency (FSA) is a UK-wide non-ministerial Government department, established under the Food Standards Act 1999 with responsibility for the protection of public health in relation to food. This is issued under section 20 of the Act, which confers powers to issue guidance upon the FSA.

LA EHDs have a responsibility under Codes of Practice (Food Law Code of Practice 2006 section 1.7.6) to inform FSA of all national or serious localised outbreaks. The FSA Incidents Branch is the point of contact for LAs in relation to outbreaks and incidents. Where relevant, the FSA will assist in the investigation of foodborne outbreaks and lead on any food chain analysis and action that may be required for implicated foods.

Where investigations implicate a food distributed in the UK the FSA will carry out a risk assessment and work with LAs to advise the food business operator (FBO) on steps that ought to be taken in relation to the affected product(s). These steps may include the withdrawal or recall of food pursuant to EC General Food Law Regulation 178/2002, which prohibits food being placed on the market if it is unsafe (i.e. it is either injurious to health or unfit for human consumption). Under this EC regulation FBOs are also required to notify the competent authorities (i.e. both the FSA and relevant LA) where they consider or have reason to believe that food is not in compliance with food safety requirements.

Animal Health and Veterinary Laboratories Agency

In April 2011, the Veterinary Laboratories Agency merged with Animal Health to form the Animal Health and Veterinary Laboratories Agency (AHVLA). AHVLA is funded by Defra to give assistance to outbreak control teams as appropriate where a direct or indirect animal source is implicated in outbreaks of enteric (or other zoonotic) illness and where veterinary investigation (including collection of appropriate animal samples) or intervention could help reduce risks to the public. Veterinary involvement may be initiated centrally by Defra or locally following contact between the CCDC or the LA and the local AHVLA regional laboratory.

ZOONOTIC DISEASES* - ROLE OF THE AHVLA

The Animal Health and Veterinary Laboratories Agency (AHVLA) is an Agency of the Department for the Environment, Food and Rural Affairs (Defra).

- Under the Animal Health Act 1981, the Regional Operations Director (ROD)¹ from the Animal Health Service is responsible for dealing with incidents of notifiable disease of animals, including those which are or may be zoonotic (e.g. anthrax, brucellosis, tuberculosis, rabies etc). The ROD will apply the relevant legal restrictions and institute the necessary control measures.
- In cases of notifiable diseases which are, or may be, zoonotic the ROD will notify the local HPTs and will provide advice when requested.
- However, in the case of salmonella incidents, a Veterinary Investigation Officer (VIO)² from the AHVLA, as Nominated Officer for the purposes of the Zoonoses Order 1989, will normally notify the EHD and CCDC by sending a copy of the Statutory Incident Report Form (Form ZO2) or by other agreed means. When it is considered necessary, initial notification may be by telephone. The VIO is able to provide the farmer and private veterinary surgeon with advice regarding control of infection on the farm and preventing its spread to the environment and other premises. The VIO is also able to advise the EHO or CCDC.
- Cases of non-notifiable diseases of animals which are or may be zoonotic will normally come first to the attention of the local VIO, usually as the result of the examination of clinical material submitted to a Veterinary Surveillance Centre by a private veterinary surgeon on behalf of a client (e.g. isolation of zoonotic pathogens from milk from a dairy animal). In such cases an assessment will be made of the zoonotic risk and if considered appropriate the VIO will discuss the incident with the relevant CCDC after consulting the owner and their veterinary surgeon.
- If the CCDC is aware of a non-notifiable disease (e.g. VTEC O157, cryptosporidium, *Coxiella burnetii*) which poses a potential zoonotic risk and requests assistance, the VIO will be prepared to undertake investigations in support of the local health enquiries. Veterinary Investigation Officers are empowered to enter premises and carry out investigations into zoonotic incidents in accordance with the Zoonoses (Monitoring) (England) Regulations (2007).
- The VIO or ROD will provide the CCDC with advice regarding animal aspects of zoonotic disease when requested. This will take account of their own specific role with respect to notifiable diseases and the non-statutory zoonoses and confidential aspects of their relationships with veterinary surgeons and their clients with respect to non-notifiable diseases.

* Guidelines for the investigation of zoonotic diseases in England and Wales are available on the HPA website http://www.hpa.org.uk/infections/topics_az/zoonoses

¹ The DVM has been replaced by the Regional Operations Director (ROD). The South East region covers Norfolk, Suffolk, Cambridgeshire, Hertfordshire, Bedfordshire, London, Essex, Kent, East & West Sussex, Surrey, Hants and Isle of Wight, Oxfordshire, Buckinghamshire and Berkshire. Contact is via its Bury St Edmunds location – ask to speak to the Duty Vet.

² The VIO AHVLA is co-located at Bury St Edmunds and is the Nominated Officer (Zoonoses Order 1989) for Cambridgeshire, Suffolk, Norfolk, Bedfordshire, Hertfordshire, Essex and parts of Greater London.

CRYPTOSPORIDIUM AND WATER SUPPLIES

Person-to-person spread is the most significant route of transmission of cryptosporidiosis. Waterborne transmission is uncommon, but has the potential for infecting a large number of people. Since 2000, water companies are required to carry out risk assessments to establish if there is a significant risk of cryptosporidial oocysts getting into treated water. In this case, the water companies must ensure that water leaving the treatment works is continuously sampled and analysed daily for cryptosporidial oocysts. The average number of cryptosporidial oocysts in water leaving treatment works must be less than 1 per 10L of water.

1. Surveillance and Alerting Mechanisms

Alerting information may arise from the HPT, local microbiologist, EHP, or the water company:

- HPT, local microbiologist or EHP identify an increase in the number of cases.
- Water company reports an operational event or incident likely to result in a significant risk.
- Cryptosporidial oocysts are detected during routine monitoring.

Water companies have contingency plans to address suspected or known water contamination incidents and should also have clear mechanisms for alerting and communicating with relevant organisations including the LA, local HPT, emergency services and Drinking Water Inspectorate (DWI). Effective and timely communication is important to ensure that in the event of a potential contamination incident relevant water sources are identified. Informal discussion of potential problems, including consideration of immediate control measures, is encouraged at an early stage of any potential incident.

Most of the time no additional measures are required as the water company takes appropriate remedial actions as soon as a fault is identified.

2. Health Risk Assessment

The following should be considered:

- When and where the sample was taken
- The number of oocysts detected per 10L and the results of any viability testing
- The source and treatment of the affected water supply (groundwater/surface water; full chemical treatment/filtration only/no filtration)
- The distribution area of the water supply and size of population supplied
- Whether any problems with the supply, such as treatment failure or high turbidity, have been identified
- Whether there have been any recent changes in the source and/or treatment
- How fast water travels through the distribution area (is it likely that any of the contaminated water is still in the distribution system?)
- The history of cryptosporidium sampling for this supply and whether there have been similar detections in the past

The actual risk to health from cryptosporidium in water supplies is probably related to the count, the species or type, whether the oocysts are alive or dead, and the level of immunity in the exposed population. The following factors provide an indication of an increased risk of a subsequent outbreak:

- A history of waterborne outbreaks associated with the same source
- High oocyst counts in consecutive samples
- Other evidence of treatment failure
- A relatively high turbidity in treated water for that supply
- A groundwater source
- Demonstration of oocyst viability

Where there is an increase in the number of cases, the water company will be asked to make an initial assessment of the geographical distribution of the cases in the light of the water supply distribution.

3. Incident Response

3.1 Protecting the health of the population – consider:

- What remediation/decontamination is taking place and what is the time frame?
- Need for a boil water notice (may be issued if health risk assessment indicates a continuing risk to health that outweighs the risks of a boil water notice).
- Need for alternative water supplies.

3.2 Possible action

Having been informed about the detection of cryptosporidial oocysts in drinking water and having completed a health risk assessment, the options available include:

- Taking no additional measures.
- Releasing advice to special groups.
- Enhancing surveillance for human cases.
- Requesting the water company to provide an alternative source of water.
- Issuing advice to boil water (if advice to boil water is issued there should be a clear understanding at the outset about the criteria necessary for it to be removed).

Consider whether a Major Outbreak needs to be declared and an IMT formed at a suitable location.

3.2.1 Alerting key people

- Check all affected drinking water consumers have been informed (boil water notice), including food and drink manufacturers who may be using the water.
- Consider informing the FSA if there is a threat to food.
- Consider alerting GPs, local hospitals, and neighbouring CsCDC, and ensure “at risk” groups are identified and alerted, particularly people using home renal dialysis.
- Consider alerting emergency services to potential of casualties, and in the case of the fire service, possible contaminated water from fire hydrants and possible need for removal of the contaminant.

3.2.2 Enhanced surveillance

- Via GPs.
- Via laboratories (for microbiological contamination).
- Consider requesting analyses of biological samples on sentinel cases and others exposed where symptoms are reported.
- Consider carrying out a questionnaire survey of all those exposed to identify any health effects.

4. Recovery

In deciding whether to stand down the incident and declare the end of the outbreak the following should be considered:

- Does the drinking water quality now meet regulatory drinking water standards?
- Has the area been adequately decontaminated?
- Have drinking water mains and domestic water pipes, tanks and plumbing fittings been adequately decontaminated?
- If permanent new water mains have been installed, have these been verified to be uncontaminated?
- Have those affected been informed of the end of the incident?

DELIBERATE RELEASE

These notes are based on Department of Health (DH) guidelines *Deliberate Release of Biological and Chemical Agents: Guidance to help plan the health service response* available on the DH website (<http://www.doh.gov.uk/epcu/index.htm>). Should a deliberate release be suspected, members of the IMT are advised to check the website to ensure that their actions meet the latest requirements.

1. General Considerations

An outbreak of communicable disease could be the result of a deliberate release of infectious organisms or toxin. A warning may be given, or the release could be covert. It is important that the possibility of a deliberate release is considered by those involved in surveillance or investigation of cases.

Possible clues to a covert deliberate release include:

- A cluster of unusual infection or a single case with no history of travel to endemic areas.
- Unusual presentations (such as higher than expected case fatality rate or a failure of the disease to respond to conventional treatment).
- Unusually high numbers of cases in a geographical area suggesting windborne infection from a point source.
- Laboratory identifies an unusual, genetically engineered or antiquated strain of agent from cases.
- Death or illness occurs among animals as well as people.

2. Principles for Responding to a Deliberate Release

The management of an incident involving deliberate release has the same objectives as the management of any outbreak but there will be important differences:

- The Police have the lead role in co-ordinating the overall response to the incident.
- It will be a highly political event conducted and reviewed under intense scrutiny.
- There will be high levels of public concern and media interest.
- There may be many more cases than in a “normal” outbreak, stretching resources for treating cases and investigating the cause. The incident is likely to escalate rapidly to major incident status.

If a deliberate release is suspected, the police must be informed. The police will take advice from national groups as to whether the threat is credible and proceed or not on the basis of that advice.

If it is felt that a deliberate release could have occurred, a Scientific and Technical Advisory Cell (STAC) will need to be set up (see section 4.6).

INCIDENT MANAGEMENT TEAM

1. Terms of Reference of IMT

The IMT must agree its terms of reference at the first meeting. Suggested terms of reference are listed below:

- To agree the purpose of the investigation and the lead organisation¹ with accountability for the management of the outbreak and ownership of the data.
- To agree membership and chair of the IMT and assign specific responsibilities to named individual members of the team.
- To identify any additional expert assistance that may be required.
- To determine the necessary commitment of personnel and resources including the establishment of an incident control room.
- To meet regularly during the outbreak and ensure a written record of each meeting.
- To investigate the source and cause of the outbreak.
- To recommend measures necessary to control the outbreak.
- To monitor the implementation and effectiveness of control measures.
- To ensure arrangements for communication with patients and the public, general practitioners, media, staff, other health and local authority services.
- To determine and declare the end of the outbreak, based on ongoing risk assessment.
- To evaluate the overall experience of controlling the outbreak, and implement the lessons learnt.
- To ensure the production of a comprehensive outbreak management report.

¹ Some principles for agreeing lead organisation:

- For outbreaks confined to NHS Trust premises, this will be the relevant NHS Trust
- For outbreaks not confined to NHS Trust premises and involving food/waterborne disease, the lead organisation will be the relevant district/city council or unitary authority.
- For other outbreaks, this will depend on the nature and circumstances of the outbreak, for instance, in the event of an avian influenza incident, the PHE will lead on the human health consequences of the incident.
- Where significant health service input is required in an incident, e.g. a meningococcal disease outbreak requiring large scale prophylaxis, the PHE HPT will take the overall lead, with NHS England leading the NHS response.
- Where there is lack of clarity and pending the first IMT, the PHE HPT will take the initial lead.

2. Membership of IMT

2.1 The core members of the IMT will, depending on the circumstances, include:

- CCDC/HPT member
- Infection Control Doctor/Nurse Specialist
- Director of Public Health (or nominated deputy)
- Senior Environmental Health Practitioner
- NHS lead – usually from NHS England, or delegated to the CCG. In an outbreak confined to one NHS Trust, this could be the Trust Senior Manager/DIPC
- Senior Clinical Microbiologist/Virologist, as necessary
- Communications Officer
- Nominated secretary

Depending on the size and nature of the outbreak, other members may be co-opted as necessary from a wide range of agencies, but need not all be accorded full member status.

2.2 Members are required to declare any possible conflicts of interest as individuals or on behalf of their organisations. Any declarations of a conflict of interest should be recorded and a decision made by the chair on that individual's status e.g. whether they are to remain on the IMT, whether they attend for specific sections of the meetings, etc.

3. Arrangements for the IMT

Full secretarial services to support the IMT will usually be provided by the lead organisation. Operational groups may need to be set up to implement particular aspects of the response e.g. epidemiological investigation, mass treatment, helpline, etc.

4. Outline IMT Agenda (possible headings – amend as appropriate)

1. Introductions and apologies
2. Purpose of meeting
3. Terms of Reference and Membership (for first meeting)
 - Agree Terms of Reference, including lead accountable organisation and chair
 - Review membership of group and allocate roles
 - Discuss confidentiality issues (if relevant)
4. Minutes of previous meeting (for subsequent meetings)
5. Review of evidence
 - Epidemiological
 - Microbiological
 - Environmental and food chain
6. Current risk assessment
7. Control measures
8. Further investigations
 - Epidemiological
 - Microbiological
 - Environmental and food chain
9. Communications
 - Lead communications officer and media spokesperson
 - Information for professionals
 - Information for the public
 - Media
 - Others
10. Agreed actions (identify responsible persons and timescales)
11. Any other business
12. Date of next meeting

5. Checklist of Matters to be Considered

5.1 Medical/nursing care of patients

- Advice to GPs, district nurses, health visitors and other primary health care staff
- Liaison with hospital clinicians who may be involved in out-patient or in-patient investigation and treatment of cases
- Additional medical and nursing staff/redeployment
- Supplies, including disposables, drugs, laundry, etc.

5.2 Investigating the source of outbreak

- Identifying the cause and extent of the problem
- Gathering data and instituting an epidemiological study
- Preparation and distribution of questionnaires
- Specimens and samples – collection, transport, laboratory examinations and reporting mechanisms.

5.3 Control measures

- Special nursing procedures
- Special cleaning/disinfection procedures
- Screening patients, staff and other contacts
- Restrictions on
 - visiting
 - continued employment (exclusions)
 - attendance at school
- Advice to employers
- Enforcement action in relation to food premises
- Immunisation
- Prophylactic medication

5.4 Monitoring

- Incidence of cases and links between cases
- Effectiveness of control measures

5.5 Communications

- With patients, relatives and the public:
 - What to tell them
 - Who will communicate
 - Method of communication, e.g. telephone helpline
- With staff:
 - Anxieties over susceptibility
 - Advice on personal protection
 - Advice for their relatives
- With other Agencies: e.g.
 - CCGs, Community and Mental Health Trusts and GPs
 - Acute NHS Trusts (including A&E)
 - Neighbouring HPTs and LAs
 - NHS England Area Team
 - Water Companies
- With the media:
 - Agreed statement
 - Reactive or proactive
 - Media briefing

CORE IMT ROLES AND RESPONSIBILITIES

Chair of the IMT/Incident Lead

To be agreed at the first meeting. Could be drawn from: DPH, DIPC, CCDC, IPCD, SEHP, etc.

- Ensure membership is appropriate and that IMT members have assigned roles and responsibilities.
- Direct and coordinate the overall management of the outbreak.
- Ensure effective and timely communications with IMT members and with other parties including professionals, public and media.
- Ensure that a full and accurate record is kept of all meetings of the IMT.
- Ensure that a comprehensive outbreak report with recommendations is produced.

Health Protection/Infection Control Specialist/s

This role may be fulfilled, for instance, by the CCDC or IPCD. Where this individual is also chairing the IMT and leading on the overall management, the roles asterisked below may be assigned to an investigation coordinator.

- Be a member of/chair the IMT as appropriate.
- *Present to the IMT relevant information relating to the outbreak in a timely fashion.
- Provide advice and guidance on the epidemiological aspects of the investigation and control of the outbreak.
- *Be responsible for coordinating work on the investigation and control of the outbreak.
- Lead or direct the epidemiological investigation and data analysis.
- Lead on or direct the development of investigative tools, such as standardised investigation forms (because of the wide range of organisms covered by this plan, it is not feasible to append a template investigation form).
- *Ensure arrangements for the collection of necessary information from all suspect cases, contacts and other relevant parties, e.g. controls.
- *Provide advice and support to investigating officers and community staff assisting in the management of the outbreak.
- *Assist in regular briefing of all staff involved in the outbreak.
- Assist with media and other relations if required.

Director of Public Health

- Overall executive responsibility for reviewing the health of the population including the surveillance, prevention and control of communicable diseases and infections
- Represent County Council/Unitary Authority public health on the IMT either in person or through a deputy.
- Work with NHS England and CCGs to ensure that appropriate resources are available to support the investigation and control of to ensure that budgetary or contractual issues will not delay a necessary response. This includes human, financial and other resources².
- Ensure 24-hour LA PH emergency management availability
- Inform LA elected members and senior management as appropriate

² The general principle will be that provider organisations will deliver the required actions within existing resources where feasible. When the scale of the incident is such that additional capacity needs to be commissioned, the costs will fall to the organisation which would normally commission the service – e.g. NHS England for vaccinations, CCG for lab tests or prescribing, County Council/Unitary Authority for sexually transmitted infection services.

Lead Clinical Microbiologist/Virologist

This role may be fulfilled by an NHS or PHE microbiologist.

- Be a member of the IMT as appropriate.
- Provide advice and guidance on the microbiological aspects of the investigation and control of the outbreak.
- Provide support for field investigation officers.
- Participate as necessary in the inspection of premises and collection of samples.
- Ensure the provision of a full microbiology service (including virology and serology) for the investigation of outbreaks.
- Ensure laboratory tests are undertaken appropriately and promptly.
- Interpret results of microbiological analyses and ensure that results are reported promptly to the relevant personnel.
- Ensure that specimens are referred and transported promptly to appropriate specialist services (e.g. PHE laboratory services) as required.
- Assist the IMT and clinical colleagues with treatment and prophylaxis protocols.

NHS England Senior Manager

When appropriate. This role may be fulfilled by the on call Senior Manager or Director.

- Represent NHS England on the IMT.
- Ensure 24-hour emergency management availability.
- Ensure the availability of adequate NHS resources and staff as required for the investigation and control of the outbreak³ e.g. funding of vaccinations
- Ensure that hospital trusts are alerted and able to cope with a potential influx of patients.
- Liaise with other local CCGs as appropriate.
- Assist with media and other relations if required.

CCG Senior Manager

When appropriate. This role may be fulfilled by the Medical Director/Chief Nursing Officer/Senior Medical or Nursing Operations lead.

- Represent the CCG on the IMT.
- Support NHS England to co-ordinate the community care response as required.
- Ensure 24-hour emergency management availability.
- Work with NHS England to ensure availability of adequate resources and staff as required for the investigation and control of the outbreak e.g. the assistance of community staff³.
- Support NHS England in liaising with other CCGs as appropriate.
- Assist with media and other relations if required.

NHS Trust Chief Executive/Senior Manager

This role may be fulfilled by the DIPC, Medical/ Clinical/ Operations Director or Director of Nursing.

- Ensure clinical services are available for diagnosis and treatment of cases and contacts.
- Ensure their hospitals have adopted suitable admissions policies as appropriate, including the need to stop non-emergency admissions, and arrangements for patient isolation.
- Assess the need for ward closures and emptying to allow for increased numbers of admissions and potential staff illness.
- Ensure appropriate infection control measures are being implemented in the hospital.
- Co-operate with the requests of the IMT.
- Ensure all necessary resources are available to the IMT as appropriate.
- Maintain a written plan for the response to outbreaks of infection in the Trust.

³ The general principle will be that provider organisations will deliver the required actions within existing resources where feasible. When the scale of the incident is such that additional capacity needs to be commissioned, the costs will fall to the organisation which would normally commission the service – e.g. NHS England for vaccinations.

Investigating Officers

This will usually be Environmental Health staff for outbreaks which have or may have an environmental component. In outbreaks which do not have an environmental component the IMT will identify appropriate personnel to undertake these tasks, e.g. HP nurses or PH registrars.

- Investigate each case and, where relevant, appropriate contacts and controls.
- Complete questionnaires as fully and accurately as possible and give all necessary advice and guidance to those being investigated.
- Return completed investigation forms promptly.
- Ensure suitable provision is made for collection of specimens and submission to the laboratory.
- Collect food/ samples as necessary or as requested by the IMT, taking account of chain of evidence issues and ensuring that all specimens are clearly labelled to facilitate easy and accurate collation of outbreak data.

Senior Environmental Health Practitioner

This will usually be a Senior EHP for outbreaks which have or may have an environmental component. NB: EHPs, Technical Officers and Food Safety Officers of LAs have specific responsibilities and powers in the investigation and management of water and food-borne infection.

- Be a member of/chair the IMT as appropriate.
- Make a control room available if needed.
- Provide adequate resources, including investigative staff.
- Make the necessary arrangements for enforcement actions e.g. exclusions, closures, serving of notices, etc.
- Ensure, where relevant, that the necessary inspections of premises is undertaken.
- Arrange, as appropriate, for environmental investigations ensuring that, where relevant, evidence is gathered by appropriately authorised officers in accordance with Police and Criminal Evidence Act (PACE) and other relevant legislation.
- Manage the disinfection, removal or treatment of known or suspected environmental sources of infection.
- Inform and consult with relevant bodies/agencies, (e.g. Food Standards Agency, Health & Safety Executive).
- Liaise with other departments of the LA and/or neighbouring LAs as appropriate.
- Keep elected members and LA senior management informed as necessary.

Lead Communications Officer

The designated lead media officer may be from any of the key organisations and will be agreed at the first meeting of the IMT.

- Develop a communications strategy.
- Ensure strategy covers all relevant communications, including communication to staff involved in the outbreak, health and local authority staff, the public and the media.
- Ensure strategy covers all relevant communication methods, e.g. social media.
- Liaise with the press officers of all the key organisations and coordinate the media response.
- Provide advice to the IMT on media relations.
- Help to prepare press releases and statements.
- Ensure such material is circulated appropriately.
- Organise press conferences and media briefings as appropriate.
- Be the initial point of contact for all media enquiries.

EPIDEMIOLOGICAL INVESTIGATION STEPS

<p>Preliminary assessment: establish that a problem exists; confirm the diagnosis; formulate initial hypothesis</p>	<p>A report of an outbreak of infection may be mistaken. It may result from increased clinical or laboratory detection of cases, changes in reporting patterns, changes in the size of the 'at risk' population or false positive laboratory tests.</p> <ul style="list-style-type: none"> • Review clinical case histories/arrange for laboratory tests as appropriate. • Discuss the interpretation of test results with the Consultant Microbiologist. • Take in-depth histories from a few/initial cases. • Formulate initial hypothesis on nature and origin of outbreak. <p>It is vital, in order to institute control measures, that hypotheses as to the most likely sources of illness are considered. These hypotheses are generated from a careful weighing up of data collected from a small number of cases. It is preferable to collect these data by administering a detailed semi-structured questionnaire in a face-to-face interview (or if this is not possible, by telephone). This allows the interviewer to ask probing questions, which may sometimes uncover previously unsuspected associations between cases. Self-completion questionnaires are less helpful at this stage of an investigation. It may be necessary to re-interview early cases to ask about possible exposures that are reported by later cases.</p>
<p>Control measures</p>	<p>Control measures involve either controlling the source of infection, interrupting transmission or protecting those at risk.</p> <ul style="list-style-type: none"> • Advise on appropriate precautions for cases and contacts including: investigation, screening and follow-up; isolation; hygiene; exclusion criteria. • Antibiotic prophylaxis; and immunisation. • Advise on organisational issues including catering practices, disinfection and waste disposal. Serve enforcement and/or food seizure notices if appropriate.
<p>Case definition</p>	<p>Cases can be diagnosed either clinically or by laboratory investigations. At an early stage it is important to produce a clear, workable case definition (using person, time and place). This is particularly important with previously unrecognised diseases in which proper definitions are needed before epidemiological studies can proceed.</p> <ul style="list-style-type: none"> • A simple definition of a "case" for the purpose of the outbreak should be formulated. • The initial case definition should be designed to include all those reasonably part of the outbreak. • Geographical, clinical and temporal parameters need to be defined and any exclusion criteria. • Cases can be subdivided into "confirmed" (on appropriate microbiological criteria) and "unconfirmed" (probable or possible). • Case definition may need to be revised if it becomes necessary in the light of new information, etc.

Case finding	<p>In an episode of infection, the cases that are first noticed may only be a small proportion of the total population affected and may not be representative of that population. Efforts must be made to search for additional cases. This allows:</p> <ul style="list-style-type: none"> • The extent of the incident to be quantified • A more accurate picture of the range of illness that people have experienced • Individual cases to be treated and control measures to be taken • Identification of subjects for further descriptive and analytical epidemiology
Case finding routes	<ul style="list-style-type: none"> • Statutory notifications of infectious disease • Requests for laboratory tests and reports of positive results • People attending their GPs, the local A&E department, hospital inpatients and outpatients • Reports from occupational health departments • Reports from schools of absenteeism and illness • Appeals through TV, radio and local newspapers • Screening tests applied to communities and population sub-groups
Descriptive epidemiology: generating a hypothesis	<p>Basic descriptive epidemiology is essential. In some outbreaks descriptive epidemiology might be sufficient to take action. It is also crucial for generating a hypothesis as to the source of the infection.</p> <p>Cases are described by the three epidemiological parameters of time, place and person.</p> <p><i>Person:</i> includes age, sex, occupation, clinical features, food history, travel/leisure activity, attack rates.</p> <p><i>Place:</i> cases occurring in closed communities (e.g. care homes); semi-closed communities (e.g. schools, nurseries); open communities (general population); community linked to a specific event.</p> <p><i>Time:</i> involves plotting the epidemic curve, a frequency distribution of date or time of onset.</p> <p>The incubation period should be related to events that may have occurred in the environment of the cases and which may indicate possible sources of infection.</p> <p>This detailed epidemiological description of typical cases may well provide the investigators with a hypothesis regarding the source of infection or the route of transmission. A description of atypical cases may also be helpful.</p> <p>The investigation may end here.</p>
Analytical study: testing the hypothesis	<p>Finding that consumption of a particular food, visiting a particular place or being involved in a certain activity is occurring frequently among cases is only a first step. These risk factors may also be common among those who have not been ill. Confirmation of an association between a risk factor and disease may require further microbiological or environmental investigations or an analytical epidemiological study. This can be either a cohort study or a case control study; which design is used is dependent upon the nature of the outbreak.</p>
Special studies: verifying the hypothesis	<p>For instance, microbiological typing of isolates. The role of reference microbiology tests should be considered in helping define the cluster and links to potential sources, as should other sources of evidence such as food chain investigations.</p>

TELEPHONE HELPLINE

The decision to set up a helpline will be taken by the IMT. Organisation and planning should be delegated to a subgroup. The purpose of the helpline must be explicitly defined; this may include:

- Provision of general information to members of the public who are anxious
- Identification of individuals at risk/contacts/cases.

Separate numbers may be published, e.g. one for cases and one for general public. Consideration should be given to using a Regional or National helpline (e.g. NHS 111). The needs of specific groups, e.g. ethnic minorities and the hearing impaired should also be considered.

The media can be used to publicise the helpline once a press statement has been released. Other switchboards that may be contacted by callers, e.g. neighbouring hospitals, health centres, etc should be briefed.

Helpline Information Pack

Good briefing notes and data collection forms for the helpline workers are essential, to provide consistent advice and to ensure completeness of any information collected. They should cover:

- Background to the incident
- Responses to expected questions
- Procedures for following up individuals identified as at risk, contacts or cases, with a failsafe dataflow system to keep track of such individuals
- Procedures for dealing with unexpected queries
- Guidelines on confidentiality/dealing with enquiries from the press
- Details of other resources available
- Procedures for dealing with threatening or obscene calls

Staffing

Ideally, sources of an appropriate number of potential helpline workers should be identified in advance, as part of the emergency planning process. They should have both appropriate knowledge of the subject and sufficient communications skills to deal with callers effectively and sympathetically, e.g. NHS 111.

All should receive a detailed briefing before the lines open, including background information, use of the equipment and completion of any forms.

Operation

The hours of operation will depend on the circumstances: 8am to 9 pm is usually adequate, though continuing till midnight may be appropriate. An answering machine with a recorded message giving the opening hours would be available overnight.

Four-hour shifts are standard practice, though some workers may feel able to do two shifts. A rota covering at least the first week should be arranged at the outset. A shift supervisor is needed for each shift to deal with administration and cover staff breaks.

The following data should be collected for monitoring the help line:

- Date and time of call
- Sex, age, postcode of caller
- Category of caller, e.g. general enquiry/potential case/contact

The IMT must keep the helpline staff fully aware of changes in the situation and a whiteboard in the helpline room can be used to display new information. In particular, action may be required to deal with anxiety raised by misleading press coverage. Debriefing allows information gathered during the shift to be shared and may clarify issues of concern.

Closure of the help line

The decision to close the helpline will depend on the number of incoming calls and the nature of the incident/outbreak. A formal debriefing session for all staff involved is valuable. A helpline report should be prepared for incorporation into the outbreak report.

OUTBREAK REPORT

1. Suggested Report Schedule

- **Immediate statement:** summarising the available knowledge and key issues. Present at first IMT meeting and circulate as appropriate.
- **Interim report/s** as necessary: should be considered if outbreak investigation extends beyond two weeks.
- **Final report:** the aim should be to agree a final report within six weeks of the end of the outbreak investigation.

2. Suggested Structure for Outbreak Report

The following is a list of suggested headings, which is not exhaustive. Each report should be tailored to the circumstances of the individual incident.

Executive Summary	Key features of the outbreak (who, what, where, when). Main conclusions and recommendations.
Introduction	The 'initial story': how the incident/outbreak was recognised; key events leading to the involvement of members of the investigative team and, where relevant, the formation of an IMT. Aims and objectives of the investigation.
Background	Background to the outbreak as relevant: <ul style="list-style-type: none"> • Background on organism, clinical features, morbidity, reservoirs, transmission • The setting • Population demographics, description of population at risk • Background rates of relevant infection
Investigations undertaken: methods and results	Epidemiology: -case definition and surveillance -descriptive epidemiology (including attack rates) -analytical study design and results. Environmental: -site visit (catering outlets, etc), health and safety inspection, specimens, results Microbiology: -cases, contacts, food, water, environmental Veterinary: -site visit, specimens, results
Control measures	<ul style="list-style-type: none"> • Co-ordination and management of outbreak • Action taken • Advice and control measures
Communications	<ul style="list-style-type: none"> • Communications strategy • Advice to the public, professionals and relevant agencies • Media issues
Discussion and Conclusions	Covering the investigation and control measures, justification of conclusions drawn and any other issues. Relevant information from other outbreaks.
Incident Management Review and Recommendations	Based on incident debrief. Review of the overall management, including any changes recommended to outbreak plan.
Appendices	Can include: <ul style="list-style-type: none"> • Chronology of events • IMT – terms of reference and membership • Maps, if appropriate • Letters and media statements, media coverage

Legal and Confidentiality Issues Related to Final Outbreak Reports

In recent years there has been an increase in the number of requests from solicitors for outbreak reports. In light of this there are a number of issues that should be considered by the IMT and authors when preparing the report.

To be considered by IMT and authors:

- Purpose of report and who it is for. If there will be lessons identified relating to the response of individual organisations to the outbreak, consideration should be given to including these in a separate report for internal circulation only.
- Ownership of the report. If multi-agency sign-off procedure, ownership of copyright and responsibility for formal disclosures needs to be agreed.
- Disclosure and publication. Clear arrangements for formal and informal disclosure are needed. Agreement is required regarding where the report will be published. It is normal good practice to allow those affected by the report see it in advance of publication
- The identification of individuals, organisations and business. If to be identified, consideration should be given to whether they are happy with this.
- Legal and reputational risks around the report. If these are high, consideration should be given to increasing the scrutiny of the report and getting a legal opinion before publication.
- Is further assurance through independent professional/expert scrutiny or peer review needed? Are the conclusions supported by evidence and would the conclusions and opinions stand up to independent scrutiny
- Clarify where the evidence came from and who acted on this evidence.

Legal considerations:

- Is legal advice required prior to signing off? This may be appropriate if it is known or suspected that the outbreak may be the subject of a civil or criminal prosecution, or if it is a high profile or high impact outbreak
- Does the report include: any material gained during the investigation which was NOT intended for disclosure/inclusion in a report (e.g. information from emails); which should be withheld or redacted (e.g. because it is personal, confidential or commercially sensitive) whether statements of fact or opinion; or that is defamatory?
- Has any material relevant to the subject of the document been omitted?
- Are there any active legal proceedings which could be affected by publication or disclosure of the report?
- Is there clarity about what can be disclosed, when and under what systems (eg, request from individual/solicitor; FOI or other statutory request)? Does any legislation preclude disclosure of any of the information in the report?

AUDIT TOOL FOR OUTBREAK MANAGEMENT

	Standard	
Outbreak Recognition	Initial investigation to clarify the nature of the outbreak begun within 24 hours	
	Immediate risk assessment undertaken and recorded following receipt of initial information	
Outbreak Declaration	Initial investigation undertaken and decision made regarding outbreak declaration and convening an IMT	
Incident Management Team	IMT held within three working days of decision to convene*	
	All agencies/disciplines involved in investigation and control represented at IMT meetings	
	Roles and responsibilities of IMT members agreed and recorded	
	Lead organisation with accountability for outbreak management agreed and recorded	
Outbreak Investigation and Control	Control measures documented with clear timescales for implementation and responsibility	
	Case definition agreed and recorded	
	Descriptive epidemiology undertaken and reviewed at IMT, hypothesis generated.	
	Analytical study considered and rationale for decision recorded	
	Investigation protocol prepared if an analytical study is undertaken	
Communications	Communications strategy agreed at first IMT meeting and reviewed throughout investigation	
End of Outbreak	Final outbreak report completed within 12 weeks of the formal closure of the outbreak	

* Dependant on the immediate risk assessment and this will determine the appropriate urgency according to the severity and potential risks of the illness concerned.